

Small Arms Ammunition – Centerfire Rifle & Pistol Ammunition (Lead Free Bullet)

Safety Data Sheet

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Date of Issue: 16/03/2017

Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product Name : Small arms ammunition – lead free bullet (All Calibers)

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture : Small Arms Ammunition

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Company

Federal Cartridge Company
900 Ehlen Drive
Anoka, MN 55303
T 1-800-635-7656
dangerous.goods@vistaoutdoor.com

1.4. Emergency telephone number

Emergency number : 1-800-424-9300 (Inside US), 01-703-527-3887 (Outside US) - (CHEMTREC, Day or Night)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Expl. 1.4	H204
Acute Tox. 2 (Oral)	H300
Acute Tox. 1 (Dermal)	H310
Acute Tox. 2 (Inhalation:dust,mist)	H330
STOT RE 2	H373
Aquatic Chronic 3	H412

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H204 - Fire or projection hazard
H300+H310+H330 - Fatal if swallowed, in contact with skin or if inhaled
H373 - May cause damage to organs (circulatory system) through prolonged or repeated exposure (inhalation)
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P250 - Do not subject to grinding/shock/friction.
P260 - Do not breathe vapors, mist, or spray.
P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.

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P280 - Wear protective gloves, protective clothing, and eye protection.
P284 - [In case of inadequate ventilation] wear respiratory protection .
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310 - Immediately call a POISON CENTER or doctor.
P314 - Get medical advice/attention if you feel unwell.
P320 - Specific treatment is urgent (see section 4 on this SDS).
P321 - Specific treatment (see section 4 on this SDS).
P330 - Rinse mouth.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P370+P380 - In case of fire: evacuate area.
P372 - Explosion risk in case of fire.
P373 - DO NOT fight fire when fire reaches explosives.
P401 - Store in accordance with local, regional, national, and international regulations.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.
: EUH208 - Contains Nickel(7440-02-0). May produce an allergic reaction

EUH-statements

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Copper	(CAS No) 7440-50-8 (EC no) 231-159-6	53.31 - 94.115	Not classified
Nitrocellulose	(CAS No) 9004-70-0 (EC no) 618-392-2 (EC index no) 603-037-00-6	5,4 - 24	Expl. 1.1, H201
Zinc	(CAS No) 7440-66-6 (EC no) 231-175-3 (EC index no) 030-001-01-9	0,045 - 12,23	Not classified
Nitroglycerin	(CAS No) 55-63-0 (EC no) 200-240-8 (EC index no) 603-034-00-X	0,4 - 10	Unst. Expl, H200 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation:dust,mist), H330 STOT RE 2, H373 Aquatic Chronic 2, H411
Tin	(CAS No) 7440-31-5 (EC no) 231-141-8	< 9,6	Not classified
Nickel	(CAS No) 7440-02-0 (EC no) 231-111-4 (EC index no) 028-002-00-7	0,03 - 0,38	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Chronic 3, H412

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,3-Benzenediol, 2,4,6-trinitro-, lead salt substance listed as REACH Candidate (Lead styphnate)	(CAS No) 15245-44-0 (EC no) 239-290-0 (EC index no) 609-019-00-4	0,01 - 0,04	Unst. Expl, H200 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Repr. 1A, H360Df STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Barium	(CAS No) 7440-39-3 (EC no) 231-149-1	0,01 - 0,04	Water-react. 2, H261 Acute Tox. 3 (Oral), H301 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : First, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
- First-aid measures after skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Get immediate medical advice/attention.
- First-aid measures after eye contact : Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
- First-aid measures after ingestion : Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries : Fatal if swallowed. Fatal if inhaled. Fatal in contact with skin. May cause damage to organs (circulatory system) through prolonged or repeated exposure (inhalation).
- Symptoms/injuries after inhalation : Fatal if inhaled. Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death.
- Symptoms/injuries after skin contact : This material is fatal through skin contact in small amounts. This material can be absorbed through the skin and eyes. May cause an allergic reaction in sensitive individuals.
- Symptoms/injuries after eye contact : May cause slight irritation to eyes.
- Symptoms/injuries after ingestion : This material is fatal through the oral route in small amounts. This material can cause serious health effects and death.
- Chronic symptoms : May cause damage to organs (circulatory system) through prolonged or repeated exposure (inhalation).

4.3. Indication of any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.
- Unsuitable extinguishing media : DO NOT fight fires involving explosives.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Explosive, could cause fire and secondary explosions. May ignite if heated to 250 °F (121 °C) causing projection of unconfined cartridges.
- Explosion hazard : Explosives, Division 1.4 - Explosives (with no significant blast hazard).

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Reactivity : Acids and bases can corrode, oxidize, and degrade material, resulting in poor performance. Contact with acids may cause the nitroglycerin to self-catalyze and lead to explosion.

Hazardous decomposition products in case of fire : Thermal decomposition generates: Carbon oxides (CO, CO₂). Nitrogen oxides. Metal oxides. Oxides of copper. Oxides of nickel. Zinc oxide. Barium oxides. Lead fumes. Lead compounds.

5.3. Advice for firefighters

Precautionary measures fire : Exercise caution when fighting any chemical fire. This product is an explosive with a fire or projection hazard. **DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS.**

Firefighting instructions : **DO NOT** fight fire when fire reaches explosives. **DO NOT ATTEMPT TO FIGHT FIRE.** Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

Other information : Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Keep away from heat, sparks, open flames, hot surfaces. No smoking. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Evacuate danger area. Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment : Use appropriate personal protective equipment (PPE).

Emergency procedures : Evacuate unnecessary personnel. Evacuate danger area.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area. Eliminate ignition sources. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions. Ventilate area.

Methods for cleaning up : Eliminate all ignition sources. Clean up spills immediately and dispose of waste safely. Recover the product by vacuuming, shoveling or sweeping. Use explosion-proof equipment. Use only non-sparking tools. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for proper disposal. Notify applicable government authority if release is reportable or could adversely affect the environment. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to other sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Projectiles from fired ammunition can cause puncture wounds. Avoid striking the primer of unchambered cartridges. Remove ammunition from service if any of the following conditions have occurred: corrosion, physical damage, exposure to oil or spray type lubricants.

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Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use only outdoors or in a well-ventilated area. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Keep away from sources of ignition, no smoking. Handle empty containers with care because they may still present a hazard. Do not subject to grinding, shock, or friction. Use appropriate personal protective equipment (PPE).

Hygiene measures : This product is an explosive and should only be used under the supervision of trained and licensed personnel. Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

Storage conditions : Store under moderate temperatures recommended by competent authority. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, spark and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Isolate from incompatibles. . Store locked up. Keep in fireproof place. Do not store in leather case for extended periods.

Incompatible products : Strong acids. Strong bases. Strong oxidizers. Corrosive liquids. Alkalis. Ammonia. Acetylene. Phosphorus. Peroxides. Oils and lubricants.

Special rules on packaging : Keep only in the original container.

7.3. Specific end use(s)

Small Arms Ammunition

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Copper (7440-50-8)		
Austria	MAK (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,1 mg/m ³ (respirable fraction, smoke)
Austria	MAK Short time value (mg/m ³)	4 mg/m ³ (inhalable fraction) 0,4 mg/m ³ (respirable fraction, smoke)
Belgium	Limit value (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Bulgaria	OEL TWA (mg/m ³)	0,1 mg/m ³ (metal vapor)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	2 mg/m ³ (dust and fume)
France	VLE (mg/m ³)	2 mg/m ³ (dust)
France	VME (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Greece	OEL TWA (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Greece	OEL STEL (mg/m ³)	2 mg/m ³ (dust)
USA ACGIH	ACGIH TWA (mg/m ³)	0,2 mg/m ³ (fume)
Latvia	OEL TWA (mg/m ³)	0,5 mg/m ³
Spain	VLA-ED (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Switzerland	VLE (mg/m ³)	0,2 mg/m ³ (inhalable dust)

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Copper (7440-50-8)		
Switzerland	VME (mg/m ³)	0,1 mg/m ³ (inhalable dust)
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0,1 mg/m ³ (inhalable fraction)
United Kingdom	WEL TWA (mg/m ³)	1 mg/m ³ (dust and mists) 0,2 mg/m ³ (fume)
United Kingdom	WEL STEL (mg/m ³)	0,6 mg/m ³ (calculated-fume) 2 mg/m ³ (dust and mist)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³ (dust) 0,1 mg/m ³ (fume)
Denmark	Grænseværdie (langvarig) (mg/m ³)	1,0 mg/m ³ (dust and powder) 0,1 mg/m ³ (fume)
Estonia	OEL TWA (mg/m ³)	1 mg/m ³ (total dust) 0,2 mg/m ³ (respirable dust)
Finland	HTP-arvo (8h) (mg/m ³)	1 mg/m ³ 0,1 mg/m ³ (fumes and fine particles-respirable)
Hungary	AK-érték	1 mg/m ³ 0,1 mg/m ³ (fume)
Hungary	CK-érték	4 mg/m ³ 0,4 mg/m ³ (fume)
Ireland	OEL (8 hours ref) (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Ireland	OEL (15 min ref) (mg/m ³)	0,6 mg/m ³ (calculated-fume) 2 mg/m ³ (dust and mist)
Lithuania	IPRV (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,2 mg/m ³ (respirable fraction)
Norway	Grenseverdier (AN) (mg/m ³)	0,1 mg/m ³ (fume) 1 mg/m ³ (dust)
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	0,3 mg/m ³ (value calculated-fume) 2 mg/m ³ (value calculated-dust)
Poland	NDS (mg/m ³)	0,2 mg/m ³
Romania	OEL TWA (mg/m ³)	0,5 mg/m ³ (powder)
Romania	OEL STEL (mg/m ³)	0,2 mg/m ³ (fume) 1,5 mg/m ³ (dust)
Slovakia	NPHV (priemerná) (mg/m ³)	1 mg/m ³ (dust) 0,1 mg/m ³ (fume)
Slovakia	NPHV (Hraničná) (mg/m ³)	2 mg/m ³ (dust) 0,2 mg/m ³ (fume)
Slovenia	OEL TWA (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,1 mg/m ³ (respirable fraction, fume)
Slovenia	OEL STEL (mg/m ³)	4 mg/m ³ (inhalable fraction) 0,4 mg/m ³ (respirable fraction, fume)
Sweden	nivågränsvärde (NVG) (mg/m ³)	1 mg/m ³ (total dust) 0,2 mg/m ³ (respirable dust)
Portugal	OEL TWA (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Nickel (7440-02-0)		
Austria	TEL TRK (mg/m ³)	0,5 mg/m ³ (dust, inhalable fraction)
Austria	OEL chemical category (AT)	Group A1 Carcinogen dust/aerosol, Respiratory sensitizer dust, Skin sensitizer
Belgium	Limit value (mg/m ³)	1 mg/m ³
Bulgaria	OEL TWA (mg/m ³)	0,05 mg/m ³

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Nickel (7440-02-0)		
Bulgaria	Bulgaria - BEI	45 µg/l Parameter: Nickel - Medium: urine - Sampling time: after several shifts
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,5 mg/m ³
Croatia	OEL chemical category (HR)	Carcinogen category 3
France	VME (mg/m ³)	1 mg/m ³ 1 mg/m ³ (metal gratings)
France	OEL chemical category (FR)	Carcinogen category 2
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	0,006 mg/m ³
Germany	TRGS 900 chemical category	Skin sensitization
Greece	OEL TWA (mg/m ³)	1 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	1,5 mg/m ³ (inhalable particulate matter)
Latvia	OEL TWA (mg/m ³)	0,05 mg/m ³
Spain	VLA-ED (mg/m ³)	1 mg/m ³ (manufacturing, commercialization and use restrictions according to REACH)
Spain	OEL chemical category (ES)	C1A, Sensitizer
Switzerland	VME (mg/m ³)	0,5 mg/m ³ (inhalable dust)
Switzerland	OEL chemical category (CH)	Category C2 carcinogen, Sensitizer
Switzerland	Switzerland - BEI	45 µg/l Parameter: Nickel - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures)
United Kingdom	WEL TWA (mg/m ³)	0,5 mg/m ³
United Kingdom	WEL STEL (mg/m ³)	1,5 mg/m ³ (calculated)
United Kingdom	WEL chemical category	Potential for cutaneous absorption
Czech Republic	Expoziční limity (PEL) (mg/m ³)	0,5 mg/m ³
Czech Republic	OEL chemical category (CZ)	Sensitizer
Czech Republic	Czech Republic - BEI	0,077 µmol/mmol Creatinine Parameter: Nickel - Medium: urine - Sampling time: discretionary 0,04 mg/g Kreatinin Parameter: Nickel - Medium: urine - Sampling time: discretionary
Denmark	Grænseværdie (langvarig) (mg/m ³)	0,05 mg/m ³ (dust and powder)
Estonia	OEL TWA (mg/m ³)	0,5 mg/m ³
Estonia	OEL chemical category (ET)	Sensitizer
Finland	HTP-arvo (8h) (mg/m ³)	0,01 mg/m ³ (respirable)
Finland	Finland - BEI	0,1 µmol/l Parameter: Nickel - Medium: urine - Sampling time: end of shift at end of workweek or exposure period
Hungary	MK-érték	0,1 mg/m ³
Hungary	OEL chemical category (HU)	Carcinogenic substance, Sensitizer
Ireland	OEL (8 hours ref) (mg/m ³)	0,5 mg/m ³
Ireland	OEL (15 min ref) (mg/m ³)	1,5 mg/m ³ (calculated)
Lithuania	IPRV (mg/m ³)	0,5 mg/m ³
Lithuania	OEL chemical category (LT)	Carcinogen, Sensitizer
Norway	Grænseverdier (AN) (mg/m ³)	0,05 mg/m ³
Norway	Grænseverdier (Korttidsverdi) (mg/m ³)	0,15 mg/m ³ (value calculated)
Norway	OEL chemical category (NO)	Carcinogen, Potential reproductive hazard, Sensitizing substance
Poland	NDS (mg/m ³)	0,25 mg/m ³

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Nickel (7440-02-0)		
Romania	OEL TWA (mg/m ³)	0,1 mg/m ³
Romania	OEL STEL (mg/m ³)	0,5 mg/m ³
Romania	OEL chemical category (RO)	Substances likely to cause cancer
Romania	Romania - BEI	15 µg/l Parameter: Nickel - Medium: urine - Sampling time: end of shift
Slovakia	Slovakia - BEI	0,03 mg/l Parameter: Nickel - Medium: blood - Sampling time: end of exposure or work shift
Slovenia	OEL TWA (mg/m ³)	0,5 mg/m ³ (inhalable fraction)
Slovenia	OEL STEL (mg/m ³)	2 mg/m ³ (inhalable fraction)
Slovenia	OEL chemical category (SL)	Category 2
Sweden	nivågränsvärde (NVG) (mg/m ³)	0,5 mg/m ³ (total dust)
Sweden	OEL chemical category (SE)	Sensitizer
Portugal	OEL TWA (mg/m ³)	1,5 mg/m ³ (inhalable fraction)
Portugal	OEL chemical category (PT)	A5 - Not Suspected as a Human Carcinogen
Barium (7440-39-3)		
Austria	MAK (mg/m ³)	0,5 mg/m ³ (inhalable fraction)
Austria	MAK Short time value (mg/m ³)	2 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	0,5 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	0,5 mg/m ³
Spain	VLA-ED (mg/m ³)	0,5 mg/m ³ (indicative limit value)
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0,5 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	0,5 mg/m ³
Finland	HTP-arvo (8h) (mg/m ³)	0,5 mg/m ³
Malta	OEL TWA (mg/m ³)	0,5 mg/m ³
Norway	Grenseverdier (AN) (mg/m ³)	0,5 mg/m ³
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	1,5 mg/m ³ (value calculated)
Poland	NDS (mg/m ³)	0,5 mg/m ³
Romania	OEL TWA (mg/m ³)	0,5 mg/m ³
Slovenia	OEL TWA (mg/m ³)	0,5 mg/m ³
Portugal	OEL TWA (mg/m ³)	0,5 mg/m ³ (indicative limit value)
Portugal	OEL chemical category (PT)	A4 - Not Classifiable as a Human Carcinogen
Nitroglycerin (55-63-0)		
Austria	MAK (mg/m ³)	0,5 mg/m ³
Austria	MAK (ppm)	0,05 ppm
Austria	MAK Short time value (mg/m ³)	2 mg/m ³
Austria	MAK Short time value (ppm)	0,2 ppm
Austria	OEL chemical category (AT)	Skin notation
Belgium	Limit value (mg/m ³)	0,47 mg/m ³
Belgium	Limit value (ppm)	0,05 ppm
Belgium	OEL chemical category (BE)	Skin
France	VME (mg/m ³)	1 mg/m ³
France	VME (ppm)	0,1 ppm
France	OEL chemical category (FR)	Risk of cutaneous absorption
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	0,094 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)

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Nitroglycerin (55-63-0)		
Germany	TRGS 900 Occupational exposure limit value (ppm)	0,01 ppm (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	TRGS 900 chemical category	Skin notation
Greece	OEL TWA (mg/m ³)	2 mg/m ³
Greece	OEL TWA (ppm)	0,2 ppm
Greece	OEL STEL (mg/m ³)	2 mg/m ³
Greece	OEL STEL (ppm)	0,2 ppm
Greece	OEL chemical category (GR)	skin - potential for cutaneous absorption
USA ACGIH	ACGIH TWA (ppm)	0,05 ppm
Spain	VLA-ED (mg/m ³)	0,094 mg/m ³
Spain	VLA-ED (ppm)	0,01 ppm
Spain	VLA-EC (mg/m ³)	0,19 mg/m ³
Spain	VLA-EC (ppm)	0,02 ppm
Spain	OEL chemical category (ES)	skin - potential for cutaneous exposure
Switzerland	VLE (mg/m ³)	0,094 mg/m ³
Switzerland	VLE (ppm)	0,01 ppm
Switzerland	VME (mg/m ³)	0,094 mg/m ³
Switzerland	VME (ppm)	0,01 ppm
Switzerland	OEL chemical category (CH)	Skin notation
Switzerland	Switzerland - BEI	0,5 µg/l Parameter: 1,2-Glycerine dinitrate - Medium: plasma/serum - Sampling time: end of shift 0,5 µg/l Parameter: 1,3-Glycerine dinitrate - Medium: plasma/serum - Sampling time: end of shift
Czech Republic	Expoziční limity (PEL) (mg/m ³)	0,5 mg/m ³
Czech Republic	OEL chemical category (CZ)	Potential for cutaneous absorption
Denmark	Grænseværdie (ceiling) (mg/m ³)	0,2 mg/m ³
Denmark	Grænseværdie (ceiling) (ppm)	0,02 ppm
Estonia	OEL TWA (mg/m ³)	0,3 mg/m ³
Estonia	OEL TWA (ppm)	0,03 ppm
Estonia	OEL STEL (mg/m ³)	0,9 mg/m ³
Estonia	OEL STEL (ppm)	0,1 ppm
Estonia	OEL chemical category (ET)	Skin notation
Finland	HTP-arvo (8h) (mg/m ³)	0,3 mg/m ³
Finland	HTP-arvo (8h) (ppm)	0,03 ppm
Finland	HTP-arvo (15 min)	1 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	0,1 ppm
Finland	OEL chemical category (FI)	Potential for cutaneous absorption
Hungary	AK-érték	0,5 mg/m ³
Hungary	CK-érték	2 mg/m ³
Hungary	OEL chemical category (HU)	Sensitizer, Potential for cutaneous absorption
Ireland	OEL (8 hours ref) (mg/m ³)	0,5 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	0,05 ppm
Ireland	OEL (15 min ref) (mg/m ³)	1,5 mg/m ³ (calculated)
Ireland	OEL (15 min ref) (ppm)	0,15 ppm (calculated)
Ireland	OEL chemical category (IE)	Potential for cutaneous absorption

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Nitroglycerin (55-63-0)		
Lithuania	IPRV (mg/m ³)	0,3 mg/m ³
Lithuania	IPRV (ppm)	0,03 ppm
Lithuania	TPRV (mg/m ³)	0,9 mg/m ³
Lithuania	TPRV (ppm)	0,1 ppm
Lithuania	OEL chemical category (LT)	Skin notation
Norway	Greenseverdier (AN) (mg/m ³)	0,27 mg/m ³
Norway	Greenseverdier (AN) (ppm)	0,03 ppm
Norway	Greenseverdier (Korttidsverdi) (mg/m ³)	0,81 mg/m ³ (value calculated)
Norway	Greenseverdier (Korttidsverdi) (ppm)	0,09 ppm (value calculated)
Norway	OEL chemical category (NO)	Skin notation
Poland	NDS (mg/m ³)	0,095 mg/m ³ (sum of the average weighted concentrations of compounds of the same mechanism of action cannot exceed 1)
Poland	NDSCh (mg/m ³)	0,19 mg/m ³ (when Ethylene glycol dinitrate (Nitroglycol, EGDN) is also present in the work place, it is necessary to take into account the sum of the quotient of the average weighted concentrations of both compounds to their MAC values, which may not exceed a value of 1)
Romania	OEL TWA (mg/m ³)	0,05 mg/m ³
Romania	OEL TWA (ppm)	0,005 ppm
Romania	OEL STEL (mg/m ³)	2 mg/m ³
Romania	OEL STEL (ppm)	0,22 ppm
Romania	OEL chemical category (RO)	Skin notation
Slovakia	NPHV (priemerná) (mg/m ³)	0,47 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	0,05 ppm
Slovakia	NPHV (Hraničná) (mg/m ³)	0,9 mg/m ³
Slovakia	OEL chemical category (SK)	Potential for cutaneous absorption
Slovenia	OEL TWA (mg/m ³)	0,47 mg/m ³
Slovenia	OEL TWA (ppm)	0,05 ppm
Slovenia	OEL STEL (mg/m ³)	1,88 mg/m ³
Slovenia	OEL STEL (ppm)	0,2 ppm
Slovenia	OEL chemical category (SL)	Potential for cutaneous absorption
Sweden	nivågränsvärde (NVG) (mg/m ³)	0,3 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	0,03 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	0,9 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	0,1 ppm
Sweden	OEL chemical category (SE)	Skin notation
Portugal	OEL TWA (ppm)	0,05 ppm
Portugal	OEL chemical category (PT)	skin - potential for cutaneous exposure
Tin (7440-31-5)		
Austria	MAK (mg/m ³)	2 mg/m ³ (inhalable fraction)
Austria	MAK Short time value (mg/m ³)	4 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	2 mg/m ³
Belgium	OEL chemical category (BE)	Skin
Bulgaria	OEL TWA (mg/m ³)	0,1 mg/m ³ 2,0 mg/m ³

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Tin (7440-31-5)		
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	2 mg/m ³
Cyprus	OEL TWA (mg/m ³)	2 mg/m ³
Greece	OEL TWA (mg/m ³)	2 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³
Spain	VLA-ED (mg/m ³)	2 mg/m ³
Switzerland	OEL chemical category (CH)	Skin notation
Finland	HTP-arvo (8h) (mg/m ³)	2 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	2 mg/m ³
Ireland	OEL (15 min ref) (mg/m ³)	6 mg/m ³ (calculated)
Malta	OEL TWA (mg/m ³)	2 mg/m ³
Poland	NDS (mg/m ³)	2 mg/m ³ (inhalable fraction)
Slovenia	OEL TWA (mg/m ³)	0,1 mg/m ³ (inhalable fraction) 2 mg/m ³
Slovenia	OEL chemical category (SL)	Potential for cutaneous absorption
Sweden	nivågränsvärde (NVG) (mg/m ³)	2 mg/m ³ (total inhalable dust)
Portugal	OEL TWA (mg/m ³)	2 mg/m ³

8.2. Exposure controls

Appropriate engineering controls

: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Proper grounding procedures to avoid static electricity should be followed. Product to be handled in a closed system and under strictly controlled conditions. Use explosion-proof equipment. Gas detectors should be used when toxic gases may be released. Ensure all national/local regulations are observed.

Personal protective equipment

: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection. Face shield.



Materials for protective clothing

: Chemically resistant materials and fabrics. Wear fire/flammable resistant/retardant clothing.

Hand protection

: Wear protective gloves.

Eye protection

: Chemical safety goggles.

Skin and body protection

: Wear suitable protective clothing. A full face shield is recommended.

Respiratory protection

: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Environmental exposure controls

: Avoid release to the environment.

Consumer exposure controls

: If noise levels exceed local, regional, or national limits use appropriate hearing protection.

Other information

: When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Brass or nickel plated brass
Odour	: None
Odour threshold	: No data available
pH	: No data available
Evaporation rate	: No data available

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Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Solubility	: No data available
Partition coefficient: n-octanol/water	: No data available
Viscosity	: No data available
Explosive properties	: Explosives, Division 1.4 - Explosives (with no significant blast hazard).
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content : Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Acids and bases can corrode, oxidize, and degrade material, resulting in poor performance. Contact with acids may cause the nitroglycerin to self-catalyze and lead to explosion.

10.2. Chemical stability

Stable under normal conditions. Extreme risk of explosion by shock, friction, fire or other sources of ignition.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Sparks, heat, open flame and other sources of ignition. Incompatible materials.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers. Corrosive liquids. Alkalis. Ammonia. Acetylene. Phosphorus. Peroxides. Oils and Lubricants.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Fatal if swallowed. Dermal: Fatal in contact with skin. Inhalation:dust,mist: Fatal if inhaled.

Lead Free Bullet Ammunition	
ATE CLP (oral)	50,00 mg/kg bodyweight
ATE CLP (dermal)	50,00 mg/kg bodyweight
ATE CLP (dust,mist)	0,50 mg/l/4h
Antimony (7440-36-0)	
LD50 oral rat	7 g/kg
Nickel (7440-02-0)	
LD50 oral rat	> 9000 mg/kg
1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
ATE CLP (oral)	500,00 mg/kg bodyweight
ATE CLP (dust,mist)	1,50 mg/l/4h
Barium (7440-39-3)	
LD50 oral rat	132 mg/kg

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Nitroglycerin (55-63-0)	
LD50 oral rat	100 mg/kg
LD50 oral	685 mg/kg
LD50 dermal rabbit	> 280 mg/kg
ATE CLP (oral)	5,00 mg/kg bodyweight
ATE CLP (dermal)	5,00 mg/kg bodyweight
ATE CLP (dust,mist)	0,05 mg/l/4h

Nitrocellulose (9004-70-0)	
LD50 oral rat	5000 mg/kg

Skin corrosion/irritation	: Not classified Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Not classified Based on available data, the classification criteria are not met
Respiratory or skin sensitisation	: Not classified Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified Based on available data, the classification criteria are not met

Nickel (7440-02-0)	
IARC group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (repeated exposure)	: May cause damage to organs (circulatory system) through prolonged or repeated exposure (inhalation).
Aspiration hazard	: Not classified Based on available data, the classification criteria are not met
Symptoms/Injuries After Inhalation	: Unlikely route of exposure
Symptoms/Injuries After Skin Contact	: May cause an allergic reaction in sensitive individuals.
Symptoms/Injuries After Eye Contact	: May cause slight irritation to eyes.
Symptoms/Injuries After Ingestion	: This material can cause serious health effects and death.
Chronic Symptoms	: May cause damage to organs (circulatory system) through prolonged or repeated exposure (inhalation).
Potential adverse human health effects and symptoms	: This material can cause serious health effects and death.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Harmful to aquatic life with long lasting effects.
Ecology - water	: Harmful to aquatic life with long lasting effects.

Nickel (7440-02-0)	
LC50 fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	15,3 mg/l
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
EC50 Daphnia 1	7 mg/l

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Barium (7440-39-3)	
EC50 Daphnia 1	14,5 mg/l
Nitroglycerin (55-63-0)	
LC50 fish 1	0,87 - 3,25 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 1	46 - 55 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	0,87 - 2,21 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 2	38 - 55 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
ErC50 (algae)	0,4 mg/l
NOEC chronic fish	0,03 mg/l
Nitrocellulose (9004-70-0)	
ErC50 (algae)	579 mg/l

12.2. Persistence and degradability

Lead Free Bullet Ammunition	
Persistence and degradability	May cause long-term adverse effects in the environment.

Copper (7440-50-8)

Persistence and degradability	Not readily biodegradable.
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12.3. Bioaccumulative potential

Lead Free Bullet Ammunition	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: Dispose of contents/container in accordance with local, regional, national, and international regulations.
Additional information	: Container may remain hazardous when empty. Continue to observe all precautions. Hazardous waste due to potential risk of explosion.
Ecology - waste materials	: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: Transport information






The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued. In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
0012	0012	0012	0012	0012
14.2. UN proper shipping name				
CARTRIDGES, SMALL ARMS	CARTRIDGES, SMALL ARMS	CARTRIDGES, SMALL ARMS	CARTRIDGES, SMALL ARMS	CARTRIDGES, SMALL ARMS
14.3. Transport hazard class(es)				
1.4S	1.4S	1.4S	1.4S	1.4S

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ADR	IMDG	IATA	ADN	RID
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No

14.6. Special precautions for user

No additional information available

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	Nitroglycerin
27. Nickel	Nickel
30. Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as Toxic to Reproduction category 1A or 1B (Table 3.1) or Toxic to Reproduction category 1 or 2 (Table 3.2) and listed as follows: Reproductive toxicant category 1A adverse effects on sexual function and fertility or on development (Table 3.1) or Reproductive toxicant category 1 with R60 (May impair fertility) or R61 (May cause harm to the unborn child) (Table 3.2) listed in Appendix 5 Reproductive toxicant category 1B adverse effects on sexual function and fertility or on development (Table 3.1) or Reproductive toxicant category 2 with R60 (May impair fertility) or R61 (May cause harm to the unborn child) (Table 3.2) listed in Appendix 6	1,3-Benzenediol, 2,4,6-trinitro-, lead salt
40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	Barium

Contains no substance on the REACH candidate list $\geq 0,1\%$ / SCL

Contains no REACH Annex XIV substances

Copper (7440-50-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Nickel (7440-02-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Zinc (7440-66-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

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1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Barium (7440-39-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Nitroglycerin (55-63-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Tin (7440-31-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

VOC content : Not applicable

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Date of Preparation or Latest Revision : 16/03/2017

Data sources : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Full text of H- and EUH-statements:

Acute Tox. 1 (Dermal)	Acute toxicity (dermal), Category 1
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Carc. 2	Carcinogenicity, Category 2
Expl. 1.1	Explosives, Division 1.1
Expl. 1.4	Explosives, Division 1.4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Repr. 1A	Reproductive toxicity, Category 1A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Sensitisation — Skin, Category 1
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
Unst. Expl	Explosives, Unstable explosives
Water-react. 2	Substances and Mixtures which, in contact with water, emit flammable gases, Category 2
H200	Unstable explosives
H201	Explosive; mass explosion hazard
H204	Fire or projection hazard
H261	In contact with water releases flammable gases
H300	Fatal if swallowed
H301	Toxic if swallowed
H302	Harmful if swallowed
H310	Fatal in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction

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H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H360Df	May damage the unborn child. Suspected of damaging fertility
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects
EUH208	Contains Nickel(7440-02-0). May produce an allergic reaction

EU GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.